Test of moving the HV Board

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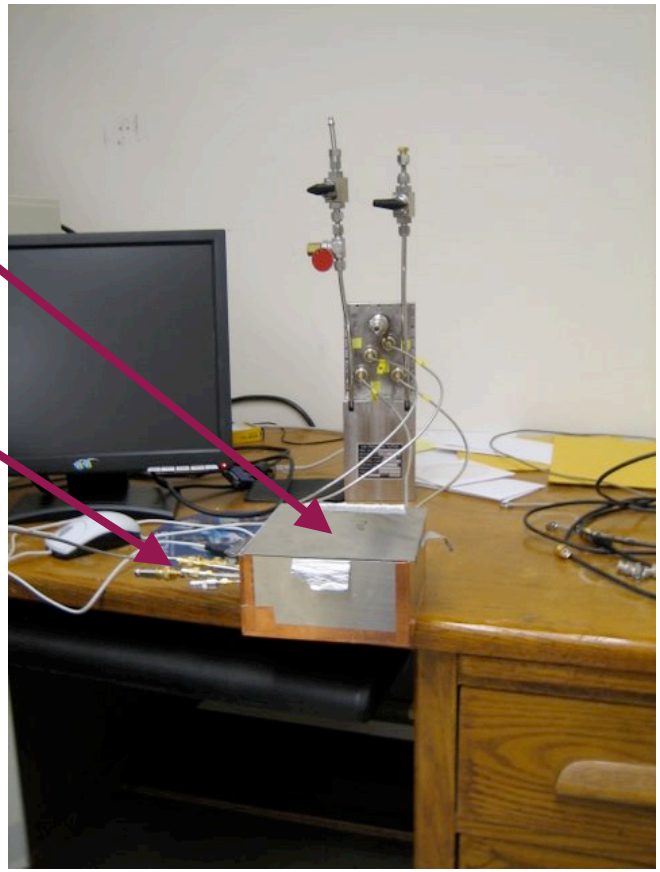
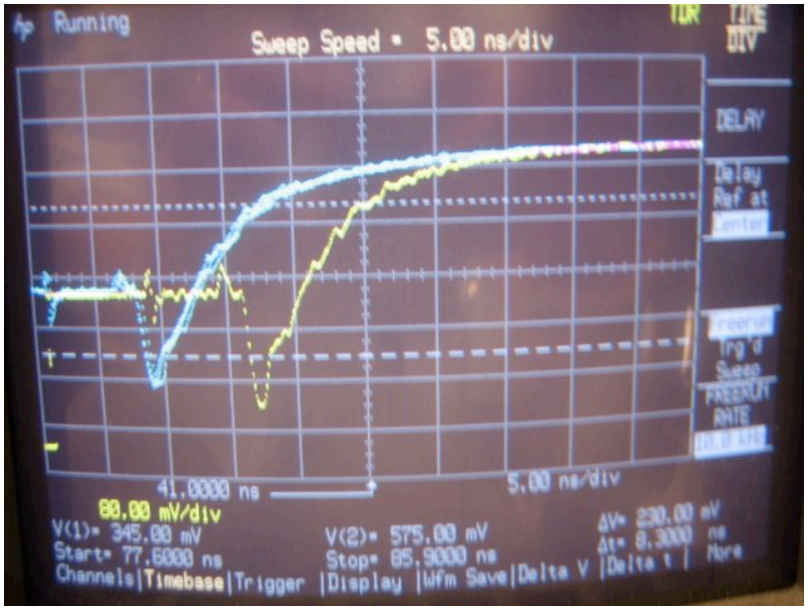
Test Setup

- HV board moved to a box
- HV input and cable output

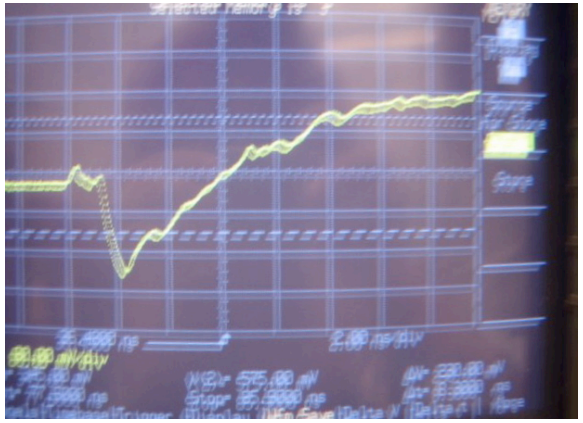


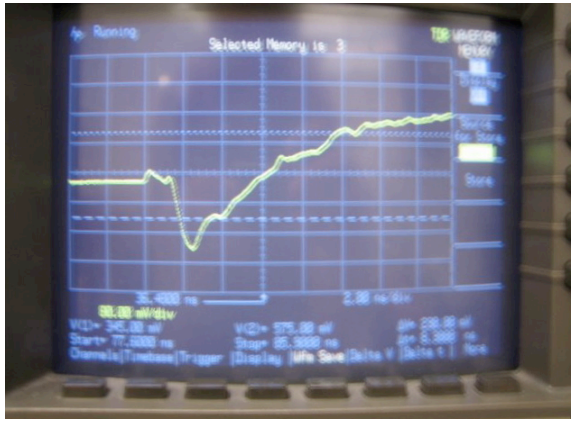
TDR test

- Typical TDR picture
- Need to digitize distorted picture
- Use computer software to pick out points
  - 50 Ω
  - 29.5 pF/ft
  - 0.070 μH/ft
  - nominal delay 1.46 ns/ft.



TDR Photos




Running
Selected Memory is 3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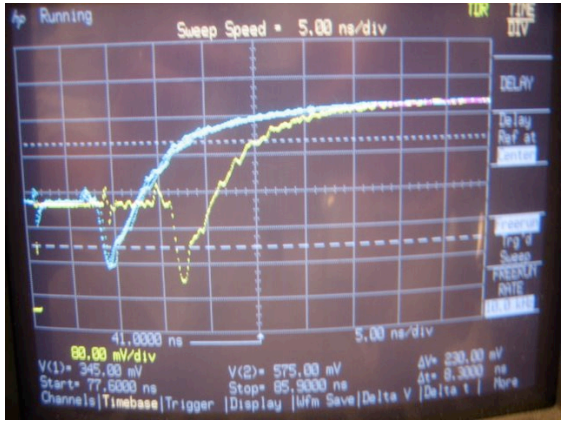
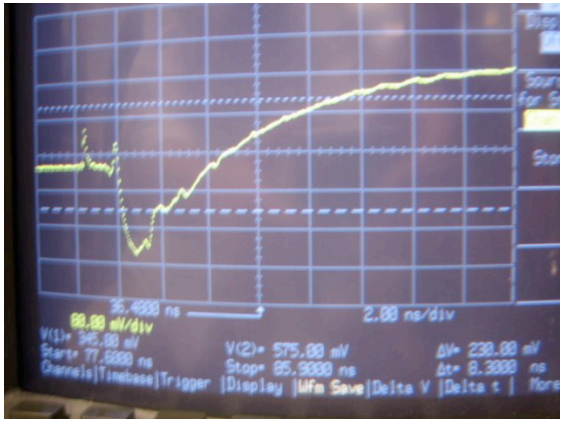
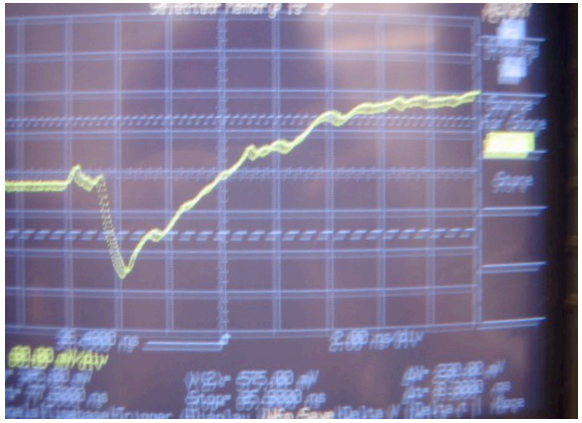

Running
Sweep Speed = 5.00 ns/div
DELAY
41.0000 ns
5.00 ns/div
80.00 mV/div
V(1)= 345.00 mV
V(2)= 575.00 mV
Start= 77.6000 ns
Stop= 85.9000 ns
Channels|Timebase|Trigger |Display |Wfm Save|Delta V |Delta t | More

Raw versus Extension



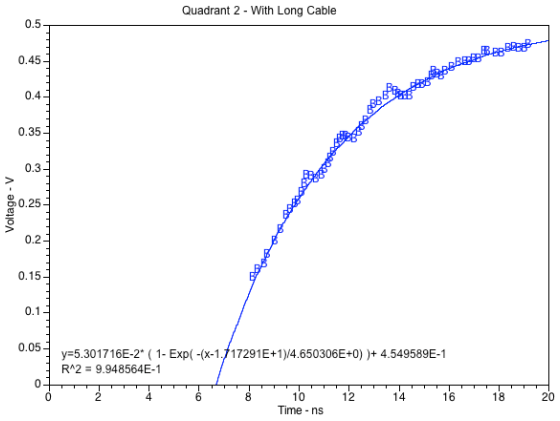
Raw Chamber



Q1

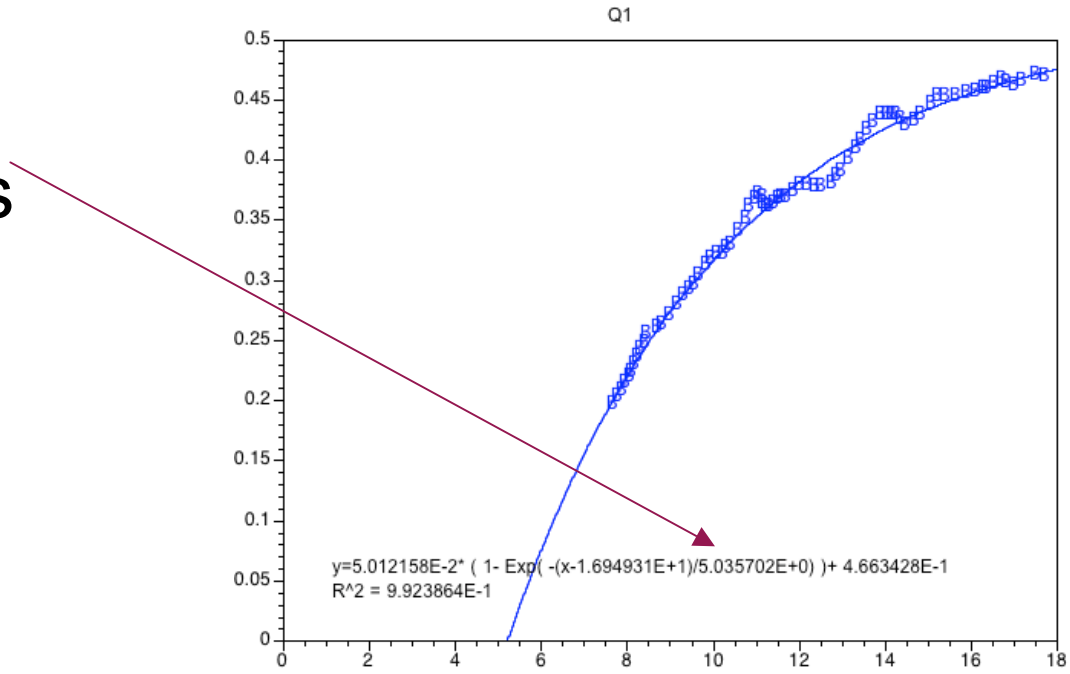
Can see structures in the circuit board

Method of Analysis



Fit Curve to an Exponential

- Good fit to an exponential
- RC = 5.0357 ns



Summary of Results

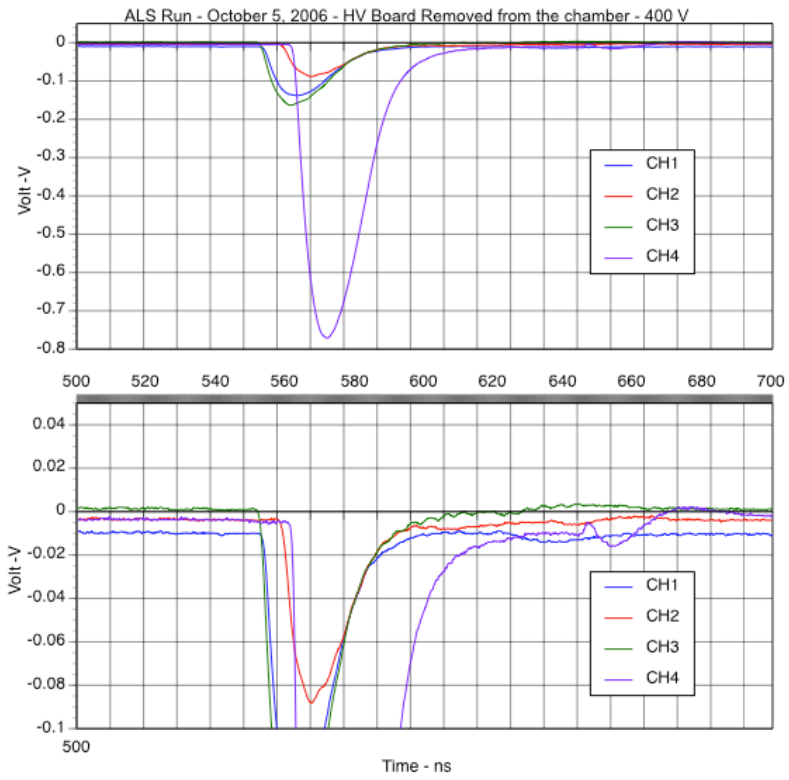
	Channel	RC - ns	Capacitance - pf
No Extra Cable	?	5.23	104.6
Long Cable	1	5.04	100.7
Long Cable	2	4.65	93.0
Long Cable	4	4.54	90.9
Long Cable	All Channels	5.22	104.5

Move to ALS

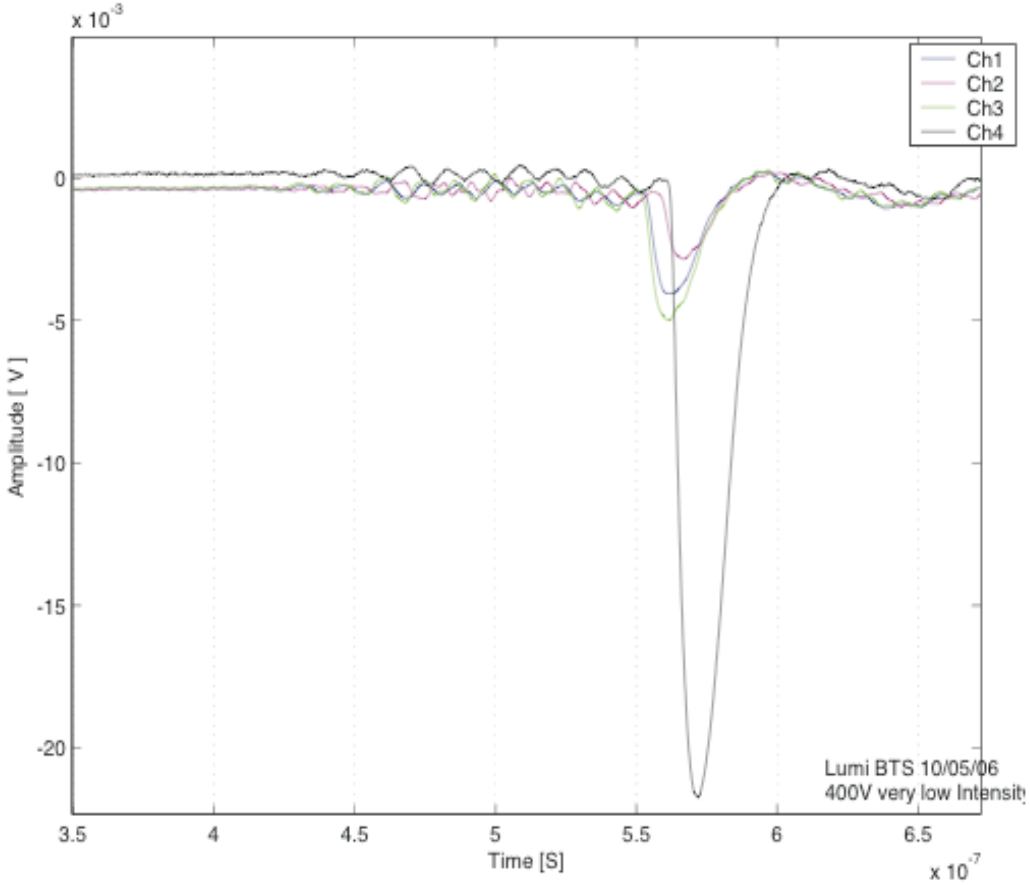
- Detector in the beam line
- Cables outside
- Chamber just worked
- Used it to tune the beam

ALS averaged pulse

- Chamber at 1 ATM
- 400 V
- “High Intensity”
- Four channels

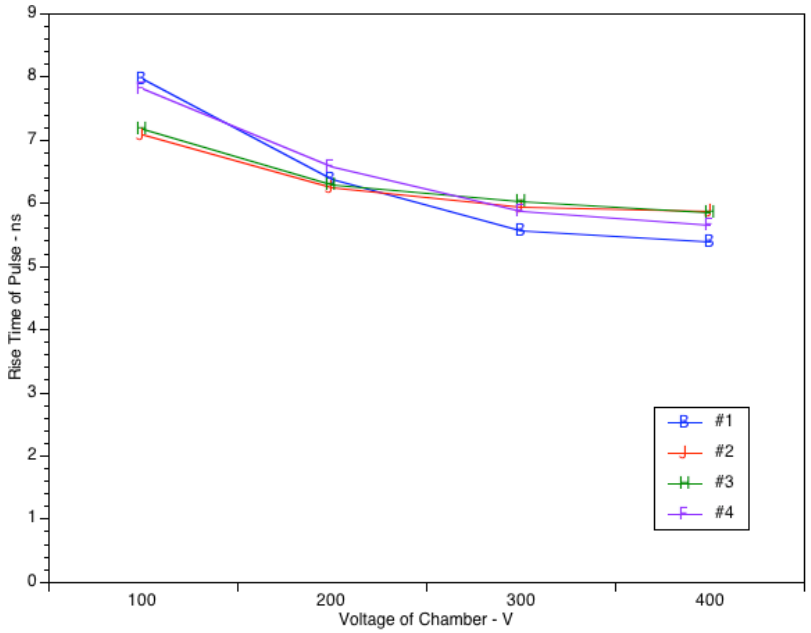


Low Intensity



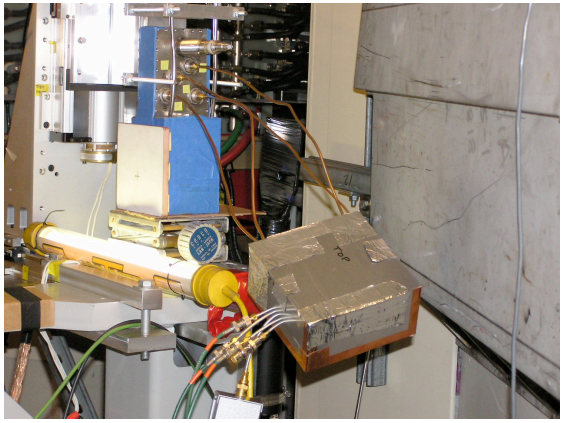
Rise Time Measurement

- Not sure how scope calculates rise time
- Is extra 1 ns due to
  - longer cables?
  - physics?
  - way measurement done?

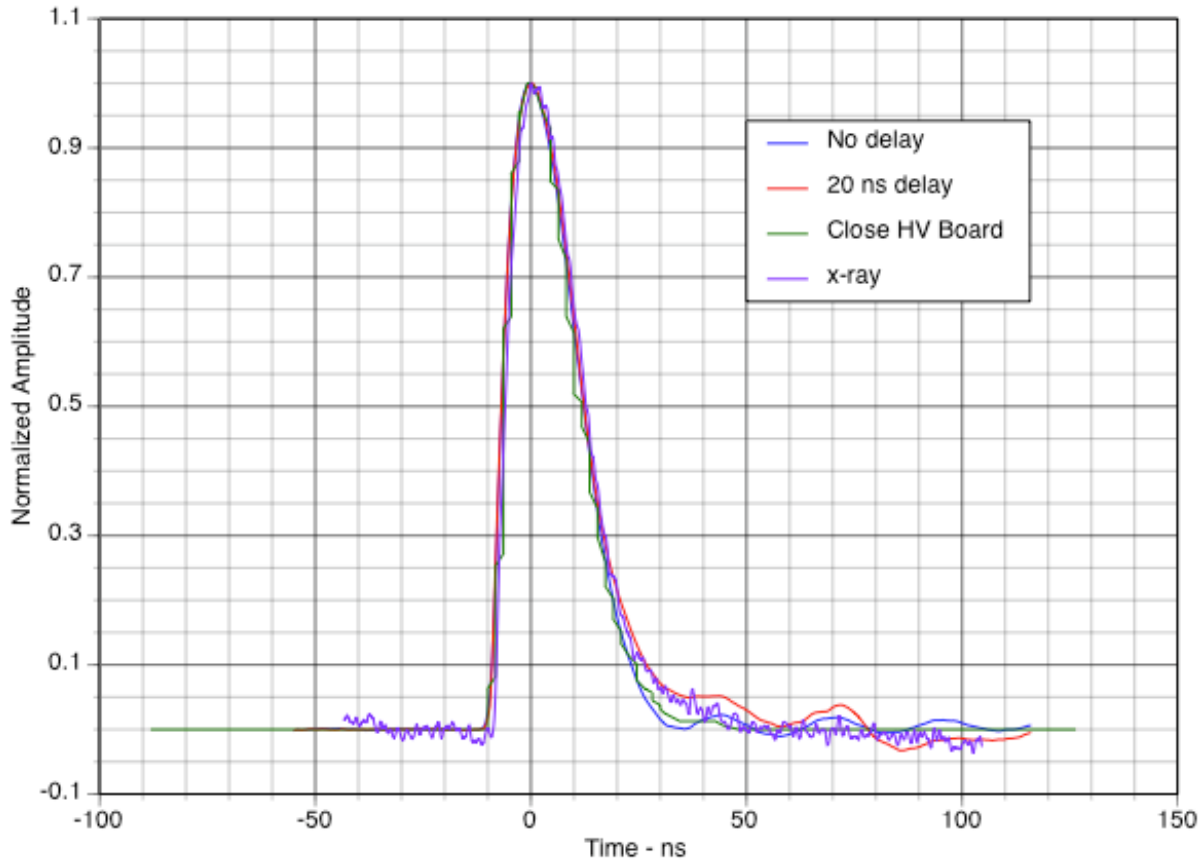


Investigate Shorter Cable

- Move a scope into beam line
- Scope few feet away
- Measure waveform
- Add a 20 ns cable
- Tried to measure rad hard cable
  - Attempted quick cable replacement
  - Too stiff
  - Broke connections



Many Waveforms - Different Intensity



Expanded Picture